Face Mask Classification

Detecting Facemasks using OpenCV, Keras/TensorFlow and Deep Learning

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1. Project Definition Information

Project Name:	Amaar Barkhadle
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2. Project Idea

The initial idea of this project is to use this dataset, to train a model and test the model. The Face mask detection data set which has 853 images to determine whether a person has either,

1. Mask on
2. Mask off

However, the initial idea was altered later on, due to the dynamic aspect of the code. Therefore, I plan to create a GUI so the user can input images which test the model.

3. Project Purpose

The implementations of this project can be astronomical with the current covid-19 pandemic. In order to prevent the spread of the diseases, masks should and must be worn. Therefore, this project can enforce the use of masks in public spaces such as shopping malls, schools and indoor areas.

Future Purpose/Scope of Project:
This project will be open source, therefore, within the 70 countries across the globe where it is mandatory to wear a facemask this project after some developments can be implemented with CCTV cameras to determine whether someone is wearing a mask or not. Furthermore, an alarm can be sound whether the cameras detect a person not wearing a facemask walking into the premises.

4. Initial Scope of the Project

The initial scope of the project is for it to determine whether a mask is being worn or not, therefore the code is more likely to be accurate and functioning.

In Scope	**Out of Scope**
***Masks Being Worn Incorrectly**, This project is constructed around a person either wearing a mask or not a mask, but what if the person is wearing a mask incorrectly.*	***Real World Examples**, This project is constructed around a person either wearing a mask or not a mask, but what if the person is not doing either but they have their mouth covered.*
Pre-loaded with dataset for facemasks	*The deployment of the project in real-time*

5. Constraints

Constraint	Impact on Project Success (High/Med/Low)
Due to not being able to download tensorflow on my M1 Chip Macbook, I had to use my desktop at home to develop my project, therefore my access to a computer is limited to at home study, restricting me from working during study period.	High
Lack of understanding of tensorflow and streamlit	Med
Extra curricular activities such as work and basketball, additionally spending time with family restricted my workflow.	Med/Low

6. Initial Issues

Issue	Description
Lack of Knowledge (Tensorflow, Streamlit)	*I rely on my research abilities to understand and develop my knowledge around tensorflow and streamlit*
Lack of access to hardware	*Project requires the use of tensorflow which is currently unavailable for me to use at school due to hardware incompatibility.*
Lack of planning	*This project was 10 weeks long, which would require a large amount of planning and sophistication. I relied on google calendar to set deadlines for specific pieces of work.*